

**REMARKS / ARGUMENTS**

The present application includes pending claims 1-40, all of which have been rejected. The Applicant respectfully submits that the claims define patentable subject matter.

Claims 1-7, 14-21, 24-29, 32-35, and 39-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 5,179,728, issued to Sowadski (hereinafter, Sowadski), in view of U.S. Patent No. 4,812,849, issued to Otto (hereinafter, Otto). Claims 8-10, 30-31, and 37-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sowadski, in view of Otto, and further in view of U.S. Patent No. 6,298,244, issued to Boesch et al. (hereinafter, Boesch). Claims 11-13 and 22-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sowadski, in view of Otto, and further in view of U.S. Patent No. 5,794,131, issued to Cairns (hereinafter, Cairns). Claim 36 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sowadski, in view of Otto, and further in view of U.S. Patent No. 6,026,287, issued to Puechberty et al. (hereinafter, Puechberty).

The Applicant respectfully traverses these rejections at least based on the following remarks.

## **I. Examiner's Response to Arguments**

The Examiner states the following in the Final Office Action:

Sowadski teaches in col. 3, lines 35-40, "the operation of the system 10 allows for the suppression of certain spurious products inherently generated pursuant to the action of the mixers 22a and 22b and further enables the level of energy radiated by the receiver due to the leakage of the local oscillator signal through the mixer to be substantially reduced". Therefore, since spurious products are generated by mixers 22a and 22b in superheterodyne receivers. These mixers are non-linear devices and harmonics of the input signals and of the local oscillator signal are generated during the mixing process. Thus, Sowadski teaches generating the signal (the intermediate signal) that is associated with a harmonics during the mixing process that results from the linear devices (See col. 1, lines 1-50, col.3, lines 7-40).

See the Final Office Action at page 2. Referring to FIG. 1 of Sowadski, the Applicant points out that spurious interference is generated by the mixers 22a and 22b, which output intermediate frequency components IFC1 and IFC2. Furthermore, Sowadski discloses that the generated spurious interference falls within or close to the intermediate frequency passband, i.e., the IF. See Sowadski at col. 1, lines 31-38. In this regard, Sowadski does not disclose or suggest that any harmonics of the intermediate signal (i.e., at multiples of IF) are generated by the mixers 22a and 22b. Therefore, the Applicant maintains that the combination of Sowadski and Otto does not disclose or suggest at least the limitation of "generating a signal at a particular frequency, the signal being associated with a harmonic frequency signal disposed at a harmonic frequency," as recited by the

Applicant in independent claim 1.

**II. The Proposed Combination of Sowadski and Otto Does Not Render Claims 1-7, 14-21, 24-29, 32-35, and 39-40 Unpatentable**

The Applicant now turns to the rejection of claims 1-7, 14-21, 24-29, 32-35, and 39-40 as being unpatentable over Sowadski in view of Otto. The Applicant notes that the proposed combination of Sowadski and Otto forms the basis for all of the pending rejections.

**A. Independent Claim 1**

With regard to the rejection of independent claim 1 under 35 U.S.C. § 103(a), the Applicant submits that the combination of Sowadski and Otto does not disclose or suggest at least the limitation of “generating a signal at a particular frequency, the signal being associated with a harmonic frequency signal disposed at a harmonic frequency,” as recited by the Applicant in independent claim 1.

The Final Office Action states the following:

With respect to claim 1, Sowadski discloses a method for reducing phase noise (Abstract), comprising: Generating a signal at a particular frequency, the signal being associated with a harmonic frequency signal disposed at a harmonic frequency (col.2, lines 1-36, col. 3, lines7-40, Fig.1).

See Final Office Action at page 4. Initially, the Applicant points out that the Abstract of Sowadski discloses a system for suppressing spurious product signals and radiation resulting from the leakage of local oscillator signal energy in radio

receivers. See Sowadski at Abstract. In this regard, the Abstract of Sowadski does not disclose or suggest "a method for reducing phase noise," as stated by the Examiner.

The Examiner further relies for support to Figure 1, col. 2, lines 1-36 and col. 3, lines 7-40 of Sowadski. Figure 1 and the above citations of Sowadski (col. 2, lines 1-36 and col. 3, lines 7-40) disclose a system a system for suppressing spurious product signals and radiation resulting from the leakage of local oscillator signal energy in radio receivers by utilizing a 0 degree and 180 degree splitters, as well as a signal combiner. The only signal being generated with regard to Figure 1, is the local oscillator signal (LOS) 35. However, Sowadski does not disclose or suggest that the LOS 35 is "associated with a harmonic frequency signal disposed at a harmonic frequency," as recited in Applicant's claim 1.

Referring to FIG. 1 of Sowadski, the Applicant points out that spurious interference is generated by the mixers 22a and 22b, which output intermediate frequency components IFC1 and IFC2. Furthermore, Sowadski discloses that the generated spurious interference falls within or close to the intermediate frequency passband, i.e., the IF. See Sowadski at col. 1, lines 31-38. In this regard, Sowadski does not disclose or suggest that any harmonics of the intermediate signal (i.e., at multiples of IF) are generated by the mixers 22a and 22b.

Otto does not overcome this deficiency of Sowadski.

Therefore, the proposed combination of Sowadski and Otto does not teach

or suggest “generating a signal at a particular frequency, the signal being associated with a harmonic frequency signal disposed at a harmonic frequency,” as recited in Applicant’s claim 1. Accordingly, the proposed combination of Sowadski and Otto does not render independent claim 1 unpatentable, and a *prima facie* case of obviousness has not been established. The Applicant submits that claim 1 is allowable. Independent claims 21 and 32 are similar in many respects to the method disclosed in independent claim 1. Therefore, the Applicant submits that independent claims 21 and 32 are also allowable over the references cited in the Office Action at least for the reasons stated above with regard to claim 1.

**B. Rejection of Dependent Claims 2-7, 14-20, 24-29, 33-35, and 39-40**

Based on at least the foregoing, the Applicant believes the rejection of independent claims 1, 21, and 32 under 35 U.S.C. § 103(a) as being anticipated by Sowadski in view of Otto has been overcome and request that the rejection be withdrawn. Additionally, claims [2-7, 14-20], 24-29, and [33-35, 39-40] depend from independent claims 1, 21, and 32, respectively, and are, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 1-7, 14-21, 24-29, 32-35,

and 39-40.

### **III. Rejection of Dependent Claims 8-10, 30-31, and 37-38**

Based on at least the foregoing, the Applicant believes the rejection of independent claims 1, 21, and 32 under 35 U.S.C. § 103(a) as being anticipated by Sowadski in view of Otto has been overcome and request that the rejection be withdrawn. Additionally, since the additional cited reference (Boesch) does not overcome the deficiencies of Sowadski and Otto, claims 8-10, 30-31, and 37-38 depend from independent claims 1, 21, and 32, respectively, and are, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 8-10, 30-31, and 37-38.

### **IV. Rejection of Dependent Claims 11-13 and 22-23**

Based on at least the foregoing, the Applicant believes the rejection of independent claims 1, 21, and 32 under 35 U.S.C. § 103(a) as being anticipated by Sowadski in view of Otto has been overcome and request that the rejection be withdrawn. Additionally, since the additional cited reference (Cairns) does not overcome the deficiencies of Sowadski and Otto, claims 11-13 and 22-23 depend from independent claims 1 and 21, respectively, and are, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 11-13 and 22-23.

**V. Rejection of Dependent Claim 36**

Based on at least the foregoing, the Applicant believes the rejection of independent claims 1, 21, and 32 under 35 U.S.C. § 103(a) as being anticipated by Sowadski in view of Otto has been overcome and request that the rejection be withdrawn. Additionally, since the additional cited reference (Puechberty) does not overcome the deficiencies of Sowadski and Otto, claim 36 depends from independent claim 32, and is, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claim 36.

**CONCLUSION**

Based on at least the foregoing, the Applicant believes that all claims 1-40 are in condition for allowance. If the Examiner disagrees, the Applicant respectfully requests a telephone interview, and request that the Examiner telephone the undersigned Attorney at (312) 775-8176.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously solicited.

Respectfully submitted,

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